

WHAT IS CLAIMED IS:

1. An exhaust gas processing device for a fuel cell, in which hydrogen gas purged from the fuel cell is mixed with cathode exhaust gas from the fuel cell and diluted prior to being discharged to an atmosphere, the exhaust gas processing device comprising:

a reservoir in which purged hydrogen gas from the fuel cell is retained and mixed with cathode exhaust gas from the fuel cell; and

an agitating gas introduction inlet provided at an upper part of the reservoir;

wherein the purged hydrogen gas is mixed with and diluted by agitating gas introduced from the agitating gas introduction inlet.

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2. An exhaust gas processing device for a fuel cell according to claim 1, wherein the agitating gas is a part of cathode gas to be supplied to the fuel cell.

20 3. An exhaust gas processing device for a fuel cell according to claim 1, wherein the agitating gas is cathode gas supplied from a branch pipe that is branched off from a cathode gas pipe for supplying cathode gas to the fuel cell.

25 4. An exhaust gas processing device for a fuel cell according to claim 1, wherein an exhaust gas pipe through which

cathode exhaust gas discharged from the fuel cell is led to an external extends through a lower part of the reservoir, and wherein the exhaust gas pipe has at least one suction hole within the reservoir.

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5. An exhaust gas processing device for a fuel cell according to claim 4, wherein a pressure of cathode exhaust gas flowing through the exhaust gas pipe is lower at the reservoir than a pressure in the reservoir.

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6. An exhaust gas processing device for a fuel cell according to claim 5, wherein the exhaust gas pipe becomes smaller in its diameter within the reservoir.

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7. An exhaust gas processing device for a fuel cell according to claim 1, wherein the agitating gas is a part of cathode exhaust gas to be discharged from the fuel cell.

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8. An exhaust gas processing device for a fuel cell according to claim 7, wherein the agitating gas is cathode exhaust gas supplied from an agitating gas pipe that is branched off from an exhaust gas pipe through which cathode exhaust gas discharged from the fuel cell is led to an external.

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9. An exhaust gas processing device for a fuel cell according to claim 8, further comprising an adjustment valve

provided in the agitating gas pipe and for adjusting an amount of agitating gas, a hydrogen concentration detector for detecting a hydrogen concentration of emission gas discharged to the atmosphere, and a controller for controlling the adjustment valve  
5 based on a detection signal from the hydrogen concentration detector.

10. An exhaust gas processing device for a fuel cell according to claim 9, wherein the controller controls flow rate  
10 adjusting means to increase an amount of cathode exhaust gas when the amount of agitating gas introduced to the reservoir is not greater than a lower limit value and the hydrogen concentration is higher than a predetermined value.

15 11. An exhaust gas processing device for a fuel cell according to claim 8, wherein the exhaust gas pipe extends under the reservoir, and wherein a communication hole provided in a bottom portion of the reservoir is in communication with a suction hole provided in the exhaust gas pipe.

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12. An exhaust gas processing device for a fuel cell according to claim 9, wherein the adjustment valve is a linear valve or a duty valve.

25 13. An exhaust gas processing device for a fuel cell according to claim 10, wherein the flow rate adjusting means is

a compressor which can feed air in accordance with rotational speed or a flow regulating valve which can adjust a flow rate.

14. An exhaust gas processing device for a fuel cell  
5 according to claim 8, further comprising an adjustment valve provided in the agitating gas pipe and for adjusting an amount of agitating gas, and wherein introduction of agitating gas is controlled in response to purging from the fuel cell.

10 15. An exhaust gas processing device for a fuel cell according to claim 14, further comprising a recirculation pipe extending from an outlet to an inlet of the fuel cell and recirculating unreacted hydrogen, a purge pipe connected to the recirculation pipe and discharging impurities or water within the  
15 recirculation pipe, and a purge valve provided in the purge pipe, wherein the purge valve is open and closed based on a signal from the controller.

16. An exhaust gas processing device for a fuel cell  
20 according to claim 15, wherein the controller opens the purge valve at a time when generated voltage lowers or at every predetermined interval.

17. An exhaust gas processing device for a fuel cell, in  
25 which hydrogen gas purged from the fuel cell is mixed with cathode exhaust gas from the fuel cell and diluted prior to being discharged

to an atmosphere, the exhaust gas processing device comprising:

a reservoir having an inlet through which purged hydrogen gas from the fuel cell is introduced into the reservoir and then mixed with cathode exhaust gas from the fuel cell; and

5 an agitating gas introduction inlet provided at an upper part of the reservoir;

wherein cathode exhaust gas to be supplied to the fuel cell is branched off and then supplied to the agitating gas introduction inlet.

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18. An exhaust gas processing device for a fuel cell comprising:

an exhaust fuel diluter having a reservoir in which hydrogen gas purged from the fuel cell is retained and then mixed with cathode exhaust gas from the fuel cell and diluted prior to being discharged to an atmosphere;

15 an agitating gas pipe for introducing agitating gas which agitates the hydrogen gas retained in the reservoir;

an adjustment valve for adjusting an amount of agitating gas;

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a hydrogen concentration detector for detecting a hydrogen concentration of emission gas discharged to the atmosphere; and

a controller for adjusting the adjustment valve based on a detection signal from the hydrogen concentration detector.

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19. An exhaust gas processing device for a fuel cell

according to claim 18, wherein the controller controls a flow rate adjusting means to increase an amount of cathode exhaust gas in a case where an amount of agitating gas to be supplied to the exhaust fuel diluter is not greater than a lower limit value and the hydrogen  
5 concentration is determined to be higher than a predetermined value.

20. An exhaust gas processing device for a fuel cell comprising:

10 an exhaust fuel diluter having a reservoir in which hydrogen gas purged from the fuel cell is retained and then mixed with cathode exhaust gas from the fuel cell and diluted prior to being discharged to an atmosphere;

an agitating gas pipe for introducing agitating gas which  
15 agitates the hydrogen gas retained in the reservoir; and

an adjustment valve for adjusting an amount of agitating gas;

wherein an introduction of agitating gas is controlled in response to an execution of purging from the fuel cell.

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